

What is claimed is:

1. 2-hydroxyisoflavanone synthase having an amino acid sequence which substantially comprises the amino acid sequence shown as SEQ-ID-No.:2.

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2. A polynucleotide substantially comprising a nucleotide sequence encoding the 2-hydroxyisoflavanone synthase of Claim 1 or a nucleotide sequence complementary thereto.

3. A polynucleotide substantially comprising a nucleotide sequence which has 50% or more of homology to a nucleotide sequence comprised in SEQ-ID-No.:1, and encodes 2-hydroxyisoflavanone synthase or the nucleotide sequence complementary thereto.

4. A polynucleotide which has 70% or more homology to a nucleotide sequence of 144-1712 of SEQ-ID-No.:1 and encodes 2-hydroxyisoflavanone synthase and a polynucleotide having a complementary sequence to the nucleotide sequences.

5. A polynucleotide which can be hybridized to at least a part of a polynucleotide having the nucleotide sequence 144-1712 of SEQ-ID-No.:1 or a nucleotide sequence complementary thereto under stringent conditions.

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6. A polynucleotide which can be hybridized to at least a part of a polynucleotide having the nucleotide sequence of SEQ-ID-No.:1 or a nucleotide sequence complementary thereto under stringent conditions.

7. A polynucleotide which can be hybridized to a polynucleotide having the nucleotide sequence 144-1712 of SEQ-ID-No.:1 or a nucleotide sequence complementary thereto under stringent condition, and encodes 2-hydroxyisoflavanone synthase.

5 8. A polynucleotide which can be hybridized to a polynucleotide having the nucleotide sequence 144-1712 of SEQ-ID-No.:1 or a nucleotide sequence complementary thereto under mild conditions.

10 9. A polynucleotide which can be hybridized to at least 15 contiguous nucleotides in SEQ-ID-No.:1 or a sequence complementary thereto under the stringent conditions, and which may function as a primer or a probe for a polynucleotide encoding 2-hydroxyisoflavanone synthase or cDNA of 2-hydroxyisoflavanone synthase.

15 10. 2-hydroxyisoflavanone synthase encoded by a nucleotide sequence having a homology of 70% or more to the nucleotide sequence of 144-1712 of SEQ-ID-No.:1, and encoding 2-hydroxyisoflavanone synthase.

20 11. 2-hydroxyisoflavanone synthase encoded by a polynucleotide which can be hybridized to a polynucleotide having the nucleotide sequence of 144-1712 of SEQ-ID-No.:1 or a nucleotide sequence complementary to this under a stringent condition, and encoding 2-hydroxyisoflavanone synthase.

12. A recombinant DNA or RNA containing an expression system which may express in a host cell a polynucleotide substantially comprising the nucleotide sequence

encoding 2-hydroxyisoflavanone synthase according to Claim 1 or a nucleotide sequence complementary thereto.

13. A recombinant DNA or RNA containing an expression system which may
5 express in a host cell a polynucleotide having a nucleotide sequence having a homology of 70% or more of the nucleotide sequence of 144-1712 of SEQ-ID-No.:1, and encoding 2-hydroxyisoflavanone synthase.

14. A recombinant DNA or RNA containing an expression system which may
10 express in a host cell a polynucleotide which can be hybridized to a polynucleotide having a nucleotide sequence of 144-1712 of SEQ-ID-No.:1 or a nucleotide sequence complementary thereto under stringent conditions, and encodes 2-hydroxyisoflavanone synthase.

15. A recombinant DNA or RNA which contains the polynucleotide according to
15 Claim 4 connected to an appropriate regulation sequence so that it can be expressed in a sense direction and which can be introduced into a plant cell and transform it so that it may over-produce 2-hydroxyisoflavanone synthase.

16. A recombinant DNA or RNA which contains the polynucleotide according to
20 Claim 7 connected to an appropriate regulation sequence so that it can be expressed in a sense direction and which can be introduced into a plant cell and transform it so that it may over-produce 2-hydroxyisoflavanone synthase.

17. A recombinant DNA or RNA which contains the polynucleotide according to

Claim 4 connected to an appropriate regulation sequence so that it can be expressed in an antisense direction and which can be introduced into a plant cell and transform it so that production of 2-hydroxyisoflavanone synthase can be inhibited according to antisense inhibition.

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18. A recombinant DNA or RNA which contains the polynucleotide according to Claim 6 connected to an appropriate regulation sequence so that it can be expressed in an antisense direction and which can be introduced into a plant cell and transform it so that production of 2-hydroxyisoflavanone synthase can be inhibited according to antisense inhibition.

19. A host cell containing one of the above-mentioned recombinant DNAs or RNAs according to any one of Claims 12 to 16.

20. A method for producing 2-hydroxyisoflavanone synthase comprising culturing the host cell according to Claim 19.

21. The method according to Claim 20 further comprising a step of collecting produced 2-hydroxyisoflavanone synthase.

22. A transgenic plant obtained by transforming the plant so that an amount of a product of an enzyme reaction catalyzed by 2-hydroxyisoflavanone synthase or derivatives thereof may be altered or increased by introducing the recombinant DNA or RNA according to any one of Claims 13 to 18 into a plant cell.

